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Test 1782: White 8610 Diesel 18-Speed

Tractor Museum
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NEBRASKA OECD TRACTOR TEST 1782 - SUMMARY 334
WHITE 8610 DIESEL
18 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 1052 rpm)					
184.29 *(137.43)*	2200	11.49 *(43.48)*	0.438 *(0.266)*	16.05 *(3.16)*	
Standard Power Take-off Speed (1004 rpm)					
200.01 *(149.15)*	2100	11.91 *(45.10)*	0.419 *(0.255)*	16.79 *(3.31)*	
Maximum Power (2 Hours)					
200.01 *(149.15)*	2100	11.91 *(45.10)*	0.419 *(0.255)*	16.79 *(3.31)*	
VARYING POWER AND FUEL CONSUMPTION					
184.29 *(137.43)*	2200	11.49 *(43.48)*	0.438 *(0.266)*	16.05 *(3.16)*	Air temperature
163.03 *(121.57)*	2293	10.80 *(40.88)*	0.466 *(0.283)*	15.10 *(2.97)*	77°F *(25°C)*
124.61 *(92.92)*	2330	8.88 *(33.61)*	0.501 *(0.305)*	14.03 *(2.76)*	Relative humidity
84.43 *(62.96)*	2379	7.04 *(26.66)*	0.586 *(0.357)*	11.99 *(2.36)*	35%
42.99 *(32.06)*	2423	5.25 *(19.88)*	0.858 *(0.522)*	8.19 *(1.61)*	Barometer
1.68 *(1.25)*	2464	3.46 *(13.09)*	14.446 *(8.787)*	0.49 *(0.10)*	29.00" Hg *(98.21 kPa)*

Maximum Torque - 633 lb.-ft. *(858 Nm)* at 1300 rpm
Maximum Torque Rise - 43.7%
Torque rise at 1800 engine rpm - 26%

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power 8th Gear									
160.22 *(119.47)*	13491 *(60.01)*	4.45 *(7.17)*	2199	4.34	0.499 *(0.304)*	14.08 *(2.77)*	187 *(86)*	61 *(16)*	28.91 *(97.90)*
75% of Pull at Maximum Power 8th Gear									
127.92 *(95.39)*	10125 *(45.04)*	4.74 *(7.63)*	2309	3.24	0.540 *(0.328)*	13.02 *(2.56)*	186 *(86)*	64 *(18)*	28.90 *(97.87)*
50% of Pull at Maximum Power 8th Gear									
87.90 *(65.55)*	6751 *(30.03)*	4.88 *(7.86)*	2356	2.13	0.622 *(0.378)*	11.30 *(2.23)*	186 *(85)*	68 *(20)*	28.87 *(97.77)*
75% of Pull at Reduced Engine Speed 10th Gear									
127.79 *(95.29)*	10083 *(44.85)*	4.75 *(7.65)*	1803	3.15	0.452 *(0.275)*	15.56 *(3.07)*	184 *(84)*	67 *(19)*	28.88 *(97.80)*
50% of Pull at Reduced Engine Speed 10th Gear									
87.97 *(65.60)*	6763 *(30.08)*	4.88 *(7.85)*	1828	2.13	0.498 *(0.303)*	14.12 *(2.78)*	183 *(84)*	68 *(20)*	28.86 *(97.73)*

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of Test: September 12 - 26, 2000

Manufacturer: AGCO Corporation, 4205 River Green Parkway, Duluth, Georgia, 30096 USA.

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8441 **Fuel weight** 7.028 lbs/gal *(0.842 kg/l)* **Oil SAE** 15W40 **API service classification** CE/CF-4 **Transmission and hydraulic lubricant** AGCO Power Fluid 821 XL fluid **Front axle lubricant** AGCO Gear Lube 715 **Total time engine was operated** 19.0 hours

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 45758300 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.488" x 5.315" *(114.0 mm x 135.0 mm)* **Compression ratio** 17.3 to 1 **Displacement** 505 cu in *(8268 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two paper elements and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 76.6 - 84.7 lb/h *(34.7 -38.4 kg/h)* **High idle:** 2380 - 2480 rpm **Turbo boost:** nominal 17.0 - 23.0 psi *(117 - 159 kPa)* as measured 21.7 psi *(149 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *CH124002* **Tread width** rear 61.5" *(1562 mm)* to 126.0" *(3200 mm)* front 60.0" *(1524 mm)* to 88.0" *(2235 mm)* **Wheelbase** 121.0" *(3073 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.44 *(2.32)* second 1.86 *(3.00)* third 2.40 *(3.87)* fourth 2.75 *(4.42)* fifth 3.09 *(4.98)* sixth 3.53 *(5.68)* seventh 4.01 *(6.45)* eighth 4.57 *(7.35)* ninth 5.17 *(8.32)* tenth 5.89 *(9.48)* eleventh 6.69 *(10.77)* twelfth 7.62 *(12.27)* thirteenth 8.62 *(13.87)* fourteenth 9.82 *(15.80)* fifteenth 11.15 *(17.95)* sixteenth 14.37 *(23.12)* seventeenth 18.59 *(29.91)* eighteenth 23.94 *(38.53)* reverse 1.44 *(2.32)*, 2.40 *(3.87)*, 2.75 *(4.42)*, 4.01 *(6.45)*, 4.57 *(7.35)*, 6.69 *(10.77)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2091 engine rpm **Unladen tractor mass** 19485 lb *(8838 kg)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					5th Gear				
138.09	18618	2.78	2245	13.89	0.559	12.56	187	54	28.90
(102.97)	*(82.82)*	*(4.48)*			*(0.340)*	*(2.47)*	*(86)*	*(12)*	*(97.87)*
					6th Gear				
158.47	18006	3.30	2192	8.05	0.510	13.77	187	58	28.91
(118.17)	*(80.09)*	*(5.31)*			*(0.310)*	*(2.71)*	*(86)*	*(14)*	*(97.90)*
					7th Gear				
169.75	17680	3.60	2099	7.72	0.492	14.29	187	59	28.91
(126.58)	*(78.64)*	*(5.79)*			*(0.299)*	*(2.82)*	*(86)*	*(15)*	*(97.90)*
					8th Gear				
173.43	15459	4.21	2099	5.40	0.482	14.59	186	62	28.92
(129.33)	*(68.77)*	*(6.77)*			*(0.293)*	*(2.87)*	*(86)*	*(17)*	*(97.93)*
					9th Gear				
171.06	13347	4.81	2098	4.25	0.484	14.53	186	62	28.92
(127.56)	*(59.37)*	*(7.73)*			*(0.294)*	*(2.86)*	*(86)*	*(17)*	*(97.93)*
					10th Gear				
175.23	11959	5.50	2093	3.79	0.479	14.69	186	62	28.92
(130.67)	*(53.19)*	*(8.84)*			*(0.291)*	*(2.89)*	*(86)*	*(17)*	*(97.93)*
					11th Gear				
172.06	10260	6.29	2096	3.24	0.482	14.57	186	62	28.92
(128.31)	*(45.64)*	*(10.12)*			*(0.293)*	*(2.87)*	*(86)*	*(17)*	*(97.93)*
					12th Gear				
172.00	8969	7.19	2095	2.88	0.483	14.54	187	63	28.91
(128.26)	*(39.90)*	*(11.57)*			*(0.294)*	*(2.86)*	*(86)*	*(17)*	*(97.90)*
					13th Gear				
170.30	7808	8.18	2101	2.69	0.487	14.43	186	63	28.91
(126.99)	*(34.73)*	*(13.16)*			*(0.296)*	*(2.84)*	*(86)*	*(17)*	*(97.90)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 138°F *(59°C)*. The pull in 3rd gear (ballasted tractor) was limited to avoid excessive tractor bouncing.The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1782**, Nebraska Summary 334, December 15, 2000.

Brent T. Sampson
Test Engineer

L.L. Bashford
M.F. Kocher
R.D. Grisso, Jr.
Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT	**With Ballast**	**Without Ballast**
Rear tires - No.,size, ply & psi*(kPa)*	Four 18.4R46; ***;16 *(110)*	Two 18.4R46;***;22*(150)*
Ballast - Duals(total)	1850 lb *(839 kg)*	None
- Cast Iron(total)	1800 lb *(817 kg)*	None
Front tires - No.,size, ply & psi*(kPa)*	Two 14.9R34; ***;30 *(205)*	Two 14.9R34;***;24*(165)*
Ballast - Liquid(total)	None	None
- Cast Iron(total)	1985 lb *(900 kg)*	None
Height of Drawbar	17.5 in *(445 mm)*	17.5 in *(445 mm)*
Static Weight with operator- Rear	15795 lb *(7164 kg)*	12610 lb *(5720 kg)*
- Front	9490 lb *(4305 kg)*	7040 lb *(3193 kg)*
- Total	25285 lb(*11469 kg)*	19650 lb *(8913 kg)*

DRAWBAR PERFORMANCE

BALLASTED - FRONT DRIVE ENGAGED

MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
					3rd Gear				
142.28 *(106.10)*	23672 *(105.30)*	2.25 *(3.63)*	2247	9.95	0.553 *(0.336)*	12.71 *(2.50)*	187 *(86)*	65 *(18)*	29.02 *(98.27)*
					4th Gear				
157.45 *(117.41)*	23216 *(103.27)*	2.54 *(4.09)*	2168	7.99	0.519 *(0.315)*	13.55 *(2.67)*	187 *(86)*	67 *(19)*	29.03 *(98.31)*
					5th Gear				
167.50 *(124.91)*	22241 *(98.93)*	2.82 *(4.55)*	2101	6.30	0.498 *(0.303)*	14.12 *(2.78)*	187 *(86)*	69 *(21)*	29.04 *(98.34)*
					6th Gear				
172.40 *(128.56)*	19828 *(88.20)*	3.26 *(5.25)*	2097	4.90	0.488 *(0.297)*	14.40 *(2.84)*	187 *(86)*	71 *(22)*	29.05 *(98.37)*
					7th Gear				
172.61 *(128.72)*	17323 *(77.06)*	3.74 *(6.01)*	2098	4.10	0.483 *(0.294)*	14.54 *(2.86)*	187 *(86)*	73 *(23)*	29.06 *(98.41)*
					8th Gear				
169.24 *(126.20)*	14824 *(65.94)*	4.28 *(6.89)*	2097	3.46	0.489 *(0.297)*	14.38 *(2.83)*	186 *(86)*	75 *(24)*	29.07 *(98.44)*
					9th Gear				
169.23 *(126.19)*	13050 *(58.05)*	4.86 *(7.83)*	2098	3.19	0.490 *(0.298)*	14.34 *(2.83)*	187 *(86)*	76 *(24)*	29.08 *(98.48)*
					10th Gear				
169.86 *(126.66)*	11439 *(50.88)*	5.57 *(8.96)*	2102	2.82	0.486 *(0.296)*	14.45 *(2.85)*	187 *(86)*	76 *(24)*	29.09 *(98.51)*
					11th Gear				
168.62 *(125.74)*	9982 *(44.40)*	6.33 *(10.19)*	2099	2.45	0.492 *(0.299)*	14.29 *(2.81)*	187 *(86)*	77 *(25)*	29.11 *(98.58)*
					12th Gear				
167.41 *(124.84)*	8676 *(38.59)*	7.24 *(11.65)*	2099	2.26	0.495 *(0.301)*	14.19 *(2.80)*	186 *(86)*	78 *(26)*	29.11 *(98.58)*
					13th Gear				
166.75 *(124.34)*	7632 *(33.95)*	8.19 *(13.19)*	2097	1.98	0.498 *(0.303)*	14.11 *(2.78)*	186 *(86)*	78 *(26)*	29.10 *(98.54)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in 8th gear	77.0	76.2
Bystander	--	--

THREE POINT HITCH PERFORMANCE (OECD Static Test)

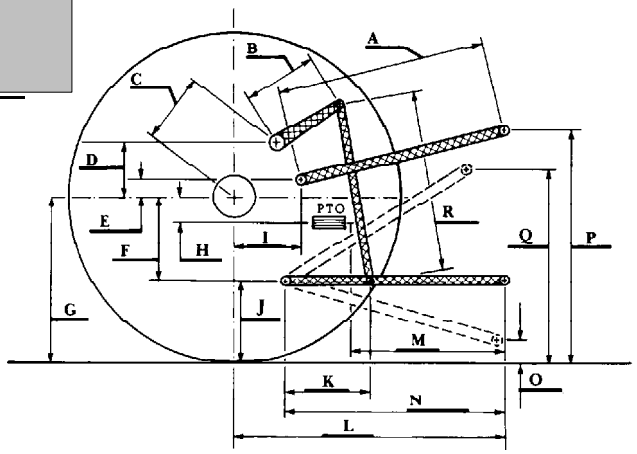
CATEGORY: III
Quick Attach: None
Maximum Force Exerted
Through Whole Range: 19710 lbs *(87.7 kN)*

		High flow option
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2860 psi *(197 bar)*	2850 psi *(196 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	30.3 GPM *(114.7 l/min)*	39.3 GPM *(148.8 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	26.1 GPM *(98.8 l/min)*	35.9 GPM *(135.9 l/min)*
Delivery pressure:	2640 psi *(182 bar)*	2490 psi *(172 bar)*
Power:	40.2 HP *(30.0 kW)*	52.2 Hp *(38.9 kW)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	3020 *(208)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	149 *(65)*
Location:	hydraulic sump
Category:	III
Quick attach:	none

HITCH DIMENSIONS AS TESTED - NO LOAD



White 8610 Diesel

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